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ABSTRACT

The correlation of ratings from the SNAP Rating Scale with the ratings from the established Conners' Rating Scale are discussed as a method for assessing the validity of the new Diagnostic and Statistical Manual of Mental Disorders (DSM-III) criteria for attention deficient disorder with hyper-activity (ADDH). The questionnaire of SNAP items and Conners' items completed by teachers of six to eleven-year-old students in Toronto, Ontario and Tallahassee, Florida is discussed. The average score per item in subcategories of inattention, impulsivity, and hyperactivity is shown to decline with age and is higher at each age for boys. Concurrent validity of the SNAP rating scale is established by the high correlation with Conners' rating scale. Study data is detailed in statistical tables. Norms presented in the study are shown to be useful for initial assessment of attention deficient behavior in the classroom related to the diagnosis of ADDH. A SNAP item list and Conners questionnaire are provided. (Author/CM)

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THE SNAP RATING SCALE FOR THE DIAGNOSIS OF THE ATTENTION DEFICIT DISORDER

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In the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III, 1980), definitions of disorders consist of descriptions of their clinical features. The DSM-III diagnostic categories of attention deficit disorders (314.00, 314.01, 314.80) provide descriptions of a behavioral disturbance of childhood which has previously been labeled the "hyperkinetic impulse disorder" (Laufer and Denhoff, 1957), "hyperactivity" (Sprague and Sleator, 1977; Conners, 1970), "hyperkinetic reaction of childhood" (DSM-II), or "minimal brain dysfunction" (Wender, 1971). The DSM-III symptoms of attention deficit disorder are presented as items 1 through 16 in Table 1. Symptoms of poor peer interaction (which are not part of the DSM-III diagnosis of ADDH, but are common problems of childhood) are included as the last 7 items of Table 1. The entire list of 23 items in Table 1, along with the rating scale format (which is not part of the DSM-III procedures), comprise the SNAP Rating Scale.

The DSM-III disgnosis proposes that the core symptoms of the disorder are inattention and impulsivity, and the symptoms of hyperactivity play a secondary or qualifying role in the diagnosis. According to DSM-III criteria, a diagnosis of attention deficit disorder without hyperactivity (ADD) is made if at least 3 of the 5 symptoms of inattention and at least 3 of the 6 symptoms of impulsivity are present. If 2 or more of the 5 symptoms of hyperactivity are also present, then a diagnosis of attention deficit disorder with hyperactivity (ADDH) is made.

The mere presence or absence of these symptoms may not have diagnostic significance. The 16 DSM-III symptoms of ADDH (see Table 1) may be usual or normal

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behavior of childhood if they occur infrequently or in a mild form. In order to justify a diagnosis of ADD or ADDH, it may be necessary to identify an elevated frequency or severity of the symptoms with respect to the age and sex of the child instead of ascertaining the presence or absence of the symptoms. The purpose of this study was to adapt the Conners' (1970) rating scale format for quantitative assessment of the DSM-III ADDH symptoms for normal boys and girls between 6 and 11 years of age based on information obtained from elementary school teachers.

The rating scale format used by Conners (Conners, 1970; Goyette, Conners, and Ulrich, 1978) requires a quantitative judgement about each behavior (e.g., is the behavior present in the child "not at all," "just a little," "pretty much," or "very much") instead of a qualitative judgement (e.g., "is the behavior present or absent in the child"). The present study used this rating scale format to obtain teacher ratings for the Conners' Rating Scale (see Table 2) in addition to ratings for the SNAP Rating Scale (see Table 1). The correlation of ratings from the SNAP Rating Scale with the ratings from the established Conners Rating Scale provides a method for assessing the validity of the new DSM-III criteria for ADDH.

SCORING

A score of 0 was given for each item rated as occurring "not at all," a score of 1 for each item rated as occurring "just a little," a score of 2 for each item rated as occurring "pretty much," and a score of 3 for each item rated as occurring "very much." Within each symptom class, an average score per item was calculated. In addition, the average score per item was calculated for the 11 ADD symptoms of inattention and impulsivity, for all 16 ADDH symptoms of inattention, impulsivity, and hyperactivity, for the 7 symptoms of poor peer interaction, and for the 10 items on the Conners Rating Scale.

SUBJECTS

Questionnaires were completed on 376 students in the Toronto sample who were between the ages of 6 thru 11, the usual age range for children referred for ADD or ADDH. Three age groups (6 and 7 years, 8 and 9 years, 10 and 11 years) of children were formed for for each sex. The number of boys and girls, respectively, at each of the three grades levels were: 6 and 7 years, 45 and 20; 8 and 9 years, 105 and 33; 10 and 11 years, 126 and 54.

Questionnaires were completed on 610 students in the Florida sample who were in grades K and 1, grades 2 and 3, and grades 4 and 5. These groups roughly correspond to the 3 age groups (6-7, 8-9, 10-11) selected for use in the Toronto sample. The numbers of boys and girls, respectively, in each pair of grade levels were: K and 1, 91 and 100; 2 and 3, 101 and 100; 4 and 5, 105 and 113.

PROCEDURE

A two page questionnaire consisting of the 23 item SNAP rating scale printed on the front and the 10 item Conners' rating scale printed on the back of a single 8 x 10 sheet of paper, was used to obtain ratings from teachers on 6 to 11 year old children in regular classrooms in Toronto, Ontario and Tallahassee, Florida. The standard instructions for the Conners' rating scale, as shown in Table 2, were used for both questionnaires.

The ratings for the Toronto sample were obtained from 50 regular classroom teachers who were attending a continuing education class at York University. In late December, 1979, and again in late December, 1980, each teacher attending the class was given 10 of the 2 page questionnaires. In order to randomly select 10 students for each teacher to rate, the following procedure was used. Randomly selected letters of the alphabet were written on the blackboard. The teachers were instructed to search through the surnames of the students in their classes, to select 10 students whose surnames began with the letters on the board, and to

complete a form for each student. The children's sex, age, and grade in school were recorded on the questionnaires.

The ratings for the Florida sample were obtained in the late spring of 1980 from 24 regular classroom teachers from two elementary public schools in Tallahassee, Florida. Four teachers at each grade level from Kindergarten through fifth grades rated all of the children in their classrooms.

RESULTS

Two-way analyses of the variance were performed for eight dependent variables, consisting of the 4 subcategories of symptoms (inattention, impulsivity, hyperactivity, and peer interaction), and the summary scores for ADD, ADDH, and Conners ratings. For the 376 regular classroom students rated, significant ($p < .05$) main effects of age and sex were obtained for each variable except peer interaction. The interaction of the age and sex factors was not significant in any of these analyses. The age effect was not significant for the peer interaction ratings, but the sex effect was significant at ($p < .05$).

These analyses show that the subjective ratings of behavior of normal school aged children follow a developmental trend. This trend may be discerned from the data presented in Table 3 and Figure 1.

For each of the 8 dependent variables, the means, standard deviations and sample sizes for the 6 groups of regular classroom students are presented in Table 3. The summary scores for ADDH and Conners ratings are presented in Figure 1. The average score per item for the 3 ADDH subcategories of inattention, impulsivity, and hyperactivity declines with age and is higher at each age for boys than for girls. The summary scores for ADDH, and the Conners' ratings reflect the same pattern.

The concurrent validity of the SNAP rating scale is established by the high ($r = .9$) correlation with the Conners' rating scale. The average rating per item

for 6 to 11 year old children previously reported for the Conners' rating scale (Goyette et al, 1978) are about the same magnitude as these reported here.

The data from the present study indicate that the presence of symptoms of the Attention Deficit Disorder may not be uncommon in normal young boys. For 6 to 7 year old boys, the average teacher rating for the 16 ADDH symptoms was 1.13, indicating that these behaviors were present more than "just a little" but less than "pretty much" in these normal (non ADDH) children. A definition based only on the presence of DSM-III ADDH behaviors, then, would diagnose most boys of this age group as having the Attention Deficit Disorder. From a statistical viewpoint, this is not "abnormal." If a cut off of 2 SD above the mean is established as a criterion for "abnormality," then an average rating of 2.77 (indicating that most symptoms were present "very much") would be necessary to diagnose ADDH in 6 to 7 year old boys. At the opposite extreme, normal 10 to 11 year old girls have few of the DSM-II symptoms of ADDH. The average rating for this group is .32 indicating that the symptoms of ADDH occur more than "not at all," but less than "just a little." An average rating of 1.34 (2 SD above the mean) would be required to establish "abnormality" on a statistical basis, so to diagnose ADDH in 10 to 11 year old girls, ratings between "just a little" and "pretty much" would be sufficient.

CONCLUSIONS

Since the subjective ratings of behavior of normal school children by teachers follows a developmental trend, and depends on the sex of the child, age and sex norms must be taken into account when evaluating a patient. The presentation of the normaltive data in Figure 2 suggests the following procedure. A given patient's score on the ADDH rating scale may be entered as a point in Figure 2, dependent upon age and sex. If the point falls below the 1 SD band, then the patient's behavior could be considered normal. If the point falls outside the 2 SD band,

then the patient's behavior could be labeled as abnormal on a statistical basis. When the point falls between the 1 SD and 2 SD bands, then a diagnosis of ADDH may be suspected, and additional confirming information should be sought.

Scores on this questionnaire should not be taken as an indication of etiology of a behavioral distrubance such as ADDH, or necessarily a good indicator of response to treatment (Sprague and Sleator, 1977). As with any rating scale, the potential of rater bias should be considered. However, the norms presented here should be a useful device for an initial assessment of behavior in the classroom that is related to the diagnosis of ADDH in children.

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TABLE 1 DSM III SYMPTOM LIST - SNAP VERSION

Child's Name _____ Age _____ Grade _____ Sex _____

Completed by: Mother _____ Father _____ Teacher _____ Other _____

OBSERVATION	Not at all	Just a little	Pretty much	Very much
Inattention				
(1) Often fails to finish things he or she starts				
(2) Often dosen't seem to listen				
(3) Easily distracted				
(4) Has difficulty concentrating on school work or other tasks requiring sustained attention				
(5) Has difficulty sticking to a play activity				
Impulsivity				
(1) Often acts before thinking				
(2) Shifts excessively from one activity to another				
(3) Has difficulty organizing work (this not being due to cognitive impairment)				
(4) Needs a lot of supervision				
(5) Frequently calls out in class				
(6) Has difficulty awaiting turn in games or group situations				
Hyperactivity				
(1) Excessively runs about or climbs on things				
(2) Has difficulty sitting still or fidgets excessively				
(3) Has difficulty staying seated				
(4) Moves about excessively during sleep				
(5) Is always "on the go" or acts as if "driven by a motor"				
Peer Interactions				
(1) Fights, hits, punches, etc.				
(2) Is disliked by other children				
(3) Frequently interrupts other children's activities				
(4) Bossy; always telling other children what to do				
(5) Teases or call other children names				
(6) Refuses to participate in group Activities				
(7) Loses temper often and easily				

TABLE 2

CONNERS PARENT-TEACHER QUESTIONNAIRE

Patient Name _____

INSTRUCTIONS: Listed below are items concerning children's behavior or the problems they sometimes have. Read each item carefully and decide how much you think this child has been bothered by this problem at this time.

Information Obtained _____ By _____
Month Day Year

OBSERVATION	Not at all	Just a little	Pretty much	Very much
1. Restless or overactive				
2. Excitable, impulsive				
3. Disturbs other children				
4. Fails to finish things he starts - short attention span				
5. Constantly fidgeting				
6. Inattentive, easily distracted				
7. Demands must be met immediately - easily frustrated				
8. Cries often and easily				
9. Mood changes quickly and drastically				
10. Temper outbursts, explosive and unpredictable behavior				

	NONE	MINOR	MODERATE	SEVERE
How serious a problem do you think this child has at this time?				

COMMENTS _____

TABLE 3

NORMS FOR REGULAR CLASSROOM STUDENTS

	6-7 Yrs		8-9 Yrs		10-11 Yrs	
	M (N = 89)	F (N = 64)	M (N = 63)	F (N = 59)	M (N = 55)	F(N=46)
INATTENTION	1.29 ± .95	.82 ± .85	.95 ± .88	.54 ± .78	.90 ± .79	.43 ± .63
IMPULSIVITY	1.10 ± .86	.63 ± .79	.76 ± .77	.34 ± .53	.68 ± .71	.26 ± .54
HYPERACTIVITY	1.00 ± .90	.51 ± .67	.81 ± .79	.31 ± .53	.48 ± .61	.27 ± .41
Peer Interaction	.75 ± .75	.55 ± .69	.60 ± .78	.28 ± .50	.42 ± .54	.28 ± .53
ADD	1.19 ± .86	.71 ± .79	.85 ± .79	.43 ± .60	.78 ± .71	.34 ± .55
ADDH	1.13 ± .82	.65 ± .72	.83 ± .75	.39 ± .55	.69 ± .63	.32 ± .48
CONNERS	1.02 ± .73	.66 ± .71	.80 ± .72	.45 ± .50	.64 ± .58	.32 ± .51
CORRELATION (C vs ADDH) R = .90	.88	.90	.91	.84	.90	.86

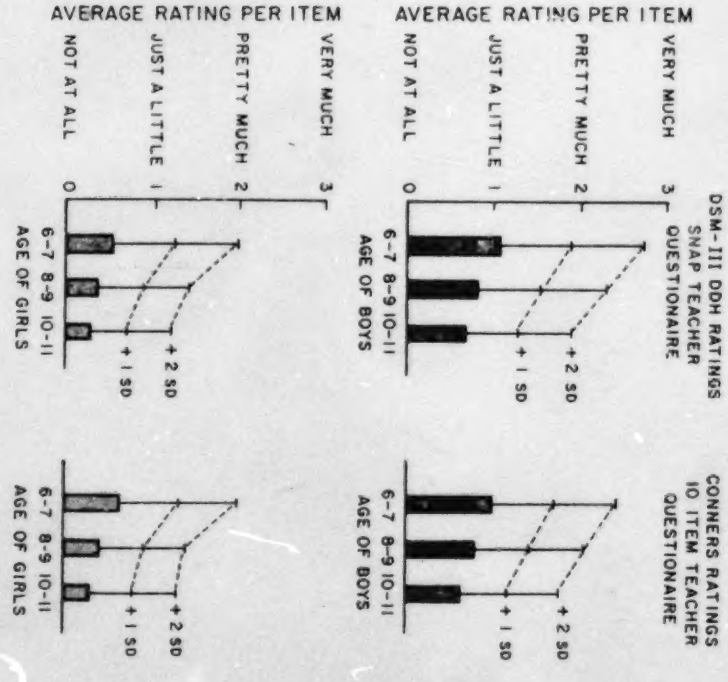

FIGURE 1